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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,642	11/03/2008	Robert Valentine Kasowski	KAW-103US	9402

7590 12/21/2011
Mr. Robert V. Kasowski
2153 Brinton's Bridge Road
West Chester, PA 19382

EXAMINER

ANTHONY, JOSEPH DAVID

ART UNIT	PAPER NUMBER
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1761

MAIL DATE	DELIVERY MODE
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12/21/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,642	Applicant(s) KASOWSKI, ROBERT VALENTINE	
	Examiner JOSEPH D. ANTHONY	Art Unit 1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/15/11 as an election.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-15 is/are pending in the application.
- 5a) Of the above claim(s) 10, 11 and 13-15 is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-9 and 12 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05/18/2006 and 02/14/2011</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, claims 1-9 and 12 in the reply filed on 09/15/2011 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 reads as followed: "*A method for preparing a composition comprising a flame retardant composition, the method comprising the steps of: a) reacting an ethyleneamine or a mixture of ethyleneamines with polyphosphoric acid and forming a two phase mixture comprising a viscous syrup that comprises the flame retardant composition, and a non-viscous phase; and b) separating the syrup from the non-viscous phase.*" Independent claim 1 is deemed to be indefinite in regards to what is meant by the preamble claim language of: "*A method for preparing a composition comprising a flame retardant composition, the method comprising the steps of:*" What does applicant mean by "***a composition comprising a flame retardant composition***"?

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Claim 1, as written, lacks a necessary additional method step of combining the synthesized flame retardant composition with another component in order to make **a composition comprising** the synthesized flame retardant composition.

Independent claim 1 is also deemed to be confusing in light of dependent claim 2, which requires that the polyphosphoric acid reaction component is first prepared by ion exchange. The problem here is that the method of independent claim 1 by requiring the production of a viscose syrup phase that contains the flame retardant composition and a non-viscous phase, would necessarily require that the polyphosphoric acid reaction component is first prepared by ion exchange. This interpretation is directly supported by applicant's specification which on page 8, lines 5-7 states: "*Syrup was only formed when an ethyleneamine such as EDA, DETA, TETA, and PEHA were reacted with ion exchanged polyphosphoric acid. The syrup did not form when commercial polyphosphoric acid was reacted with an ethyleneamine.*". As such, dependent claim 2 should be viewed as not further limiting of the method of claim 1. The Examiner suggests that applicant incorporate the subject matter of dependent claim 2 into independent claim 1 to overcome this issue.

Dependent claim 7 is also deemed to be indefinite in regards to the units of the claimed "%". Are the % units by weight or by volume?

Claimed 3-6 and 8-9 are also rejected here because they are all dependent on a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kasowski et al. U.S. Patent Number 7,138,443.

Kasowski et al. teach flame retardants, and compositions containing the flame retardants are disclosed. The flame retardants are prepared reacting ethylene diamine with polyphosphoric acid; or reacting an ethyleneamine or a mixture of ethyleneamines with phosphoric acid, polyphosphoric acid, pyrophosphoric acid, or a mixtures thereof. A 10% by weight solution of the product in water has a pH between about 3.5 to 6.5. The flame retardants are non-halogen containing flame retardants that do not gas undesirably during processing at temperatures of 235.degree. C or even higher. Applicant's claim is deemed to be anticipated over the Examples, as set forth in TABLES VII-IX, which all teach methods of reacting ethyleneamine(s) with polyphosphoric acid which had been produced by an ion exchange process. Applicant's step b) of *"adding an ethyleneamine or a mixture of ethyleneamines to the reaction mixture"* is to be met because the *ethyleneamine or a mixture of ethyleneamines which is/are added to the polyphosphoric acid in step a), are not added all at once. This is true even if the ethyleneamine or a mixture of ethyleneamines of step a) are pored into the polyphosphoric acid, because a first quantity of said ethyleneamine or a mixture of ethyleneamines would start to react with the polyphosphoric acid by the time a latter quantity of ethyleneamine or a mixture of ethyleneamines is actually contacted with the reaction mixture and already formed reaction products.*

In the alternative, applicant's claimed method is deemed to be obvious over Kasowski et al. because ordinarily, process steps taken concurrently are the equivalent of steps taken successively, and because it is well with the skill of the technician to operate a process continuously. Furthermore, applicant's process step b) is deemed to be obvious in light of Kasowski et al.'s disclosure that after the process of making the flame retardant reaction product of ethyleneamine(s) and polyphosphoric acid, additional components can be added to said flame retardant to enhance its ability to provide intumesce flame retardant properties when used. It is well known in the art that ethylenediamines as well as other organic amine, are known as effective expansion agents (i.e. nitrogen gas formers) in intumescent compositions when said compositions are subject to high heat or fire, see column 6, lines 28-32, and column 7, lines 12-21.

Claims Free of Prior-art Rejections

Claims 1-9 are free of any prior-art rejections. The closest piece of prior-art references are as followed:

1) Kasowski et al. U.S. Patent Number 7,138,443 and 2) Kasowski U.S. Patent Application Publication Number 2006/0175587 A1. Kasowski U.S. Patent Application Publication Number 2006/0175587 A1 is deemed to be almost identical to Kasowski et al. U.S. Patent Number 7,138,443 in terms of its disclosure such that the below Examiner's comments in regards to Kasowski et al. U.S. Patent Number 7,138,443 should also be considered to apply to Kasowski U.S. Patent Application Publication Number 2006/0175587 A1.

Kasowski et al. U.S. Patent Number 7,138,443 has been described above in the rejection of applicant's independent claim 12. Kasowski et al. is NOT being applied over Applicant's claims 1-9 because Kasowski et al. has neither a teaching nor a suggestion of any kind to applicant's claimed process of: "reacting an ethyleneamine or a mixture of ethyleneamines with polyphosphoric acid **and forming a two phase mixture comprising a viscous syrup that comprises the flame barrier retardant composition, and a non-viscous phase**; . . ." In Kasowski et al. disclosed processes, the reaction mixture of ethyleneamine or a mixture of ethyleneamines with polyphosphoric acid, produces either a solid resinous precipitate in the glass beaker when non-polyphosphoric acid is used (e.g. phosphoric acid) (see Example in TABLE I), **or** in the alternative produces a reaction product that is soluble in the reaction solution when polyphosphoric acid is used, see the Examples in TABLES VI-IX and column 5, lines 43-57. While the reaction product produced by using polyphosphoric acid is subsequently dried by known techniques, no step to separate a viscous syrup phase from a non-viscous phase since these two phases do not result from the method steps used by Kasowski et al.. Mr. Robert Valentine Kasowski, who is a co-inventor of said Kasowski et al. U.S. Patent Number 7,138,443, stated in his election response filed 09/15/2011, his interpretation of why his presently claimed process does produce a viscous syrup that contains the flame retardant product as well as a non-viscous phase, whereas the process disclosed in said Kasowski et al. U.S. Patent Number 7,138,443 does not produce said two reaction mixture phases. Mr. Robert Valentine Kasowski statement is as followed: "***I also add that the syrup claimed in this application was***

not discovered in earlier patent (US 7138443). Heat was applied in that work which very quickly reduces molecular weight of polyphosphoric acid which destroys the formation of syrup. My patent attorney of that time said I did not have to disclose the reason that I did not observe syrup formation in first patent."

3) von Bonin U.S. Patent Number 4,369,064 teach ethylene diammonium phosphates are excellent catalysts for particularly those intumescent agents which do otherwise not easily foam when exposed to heat.

Applicant's claims 1-9 are patentable over von Bonin because von Bonin has neither a teaching nor a suggestion of any kind to applicant's claimed process of: "reacting an ethyleneamine or a mixture of ethyleneamines with polyphosphoric acid **and forming a two phase mixture comprising a viscous syrup that comprises the flame barrier retardant composition, and a non-viscous phase.**

4) Berte et al. U.S. Patent Number 4,599,375 teach Polymeric compositions endowed with high flame self-extinguishing properties, comprising a polymer selected from amongst olefinic polymers, polystyrene, polybutylene terephthalate, SAN and ABS copolymers, and also, for 100 parts of composition: (a) 20-50 parts of piperazine acid pyrophosphate; (b) 0-3 parts of at least a compound selected from TiO_2 , SiO_2 , silicic acid, in powder having particle size ≥ 0.1 micron; (c) 0-35 parts of at least a compound selected from ammonium polyphosphate, melamine, melamine phosphate and pyrophosphate, polycarboxypiperazine, ethylene urea/formaldehyde

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condensates, as a substitute for an equal weight of compound (a), and in such amount that the composition still contains at least 5 parts of such compound (a).

Applicant's claims 1-9 are patentable over Berte et al. because Berte et al. has neither a teaching nor a suggestion of any kind to applicant's claimed process of: "reacting an ethyleneamine or a mixture of ethyleneamines with polyphosphoric acid **and forming a two phase mixture comprising a viscous syrup that comprises the flame barrier retardant composition, and a non-viscous phase.**

Prior-Art Cited But Not Applied

Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

Examiner Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571) 272-1498. The centralized FAX machine number is (571) 273-8300. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner.

**/Joseph D. Anthony/
Primary Patent Examiner
Art Unit 1761
12/17/11**

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